

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:	§	Filed: October 22, 2003
Dettinger et al.	§	
	§	Group Art Unit: 2166
Serial No.: 10/691,415	§	
	§	Examiner: Khanh B. Pham
Confirmation No.: 6177	§	

For: CONTEXT SENSITIVE TERM EXPANSION WITH DYNAMIC TERM EXPANSION

MAIL STOP APPEAL BRIEF - PATENTS
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March 23, 2009
Date

/Johnny Lam/
Johnny Lam

APPEAL BRIEF

Applicants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2166 dated October 21, 2008, finally rejecting claims 1-3, 5-7 and 9. The final rejection of claims 1-3, 5-7 and 9 is appealed. This Appeal Brief is believed to be timely since it is transmitted by the due date of March 23, 2009, as set by the filing of a Notice of Appeal on January 21, 2009.

Since an appeal brief fee in the amount of \$500.00 had been paid for a previous appeal that did not reach a Board Decision, the fees due for filing this appeal brief is \$40.00. The Commissioner is hereby authorized to charge \$40.00 to counsel's Deposit Account No. 09-0465/ROC920030261US1 for filing this appeal brief, and for any other fees required to make this appeal brief timely and acceptable to the Office.

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Real Party in Interest

The present application has been assigned to International Business Machines Corporation, Armonk, New York.

Related Appeals and Interferences

Applicant asserts that no other appeals or interferences are known to the Applicant, the Applicant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-3, 5-7 and 9 are pending in the application. Claims 1-25 were originally presented in the application. Claims 4, 8, and 10-25 have been canceled without prejudice. Claims 1-3, 5-7 and 9 stand finally rejected as discussed below. The final rejections of claims 1-3, 5-7 and 9 are appealed. The pending claims are shown in the attached Claims Appendix.

Status of Amendments

All claim amendments have been entered by the Examiner. No amendments to the claims were proposed after the final rejection.

Summary of Claimed Subject Matter

Claimed embodiments include methods directed to searching fields of a data repository using dynamic term expansion.

A. CLAIM 1 - INDEPENDENT

Claim 1 recites a method of searching fields of a data repository using dynamic term expansion. See Application, Abstract, 1:16-18, 3:19-27, 6:20-30, 13:30-32 – 14:1-2, and Figure 3A. The method includes obtaining a query containing at least one condition for searching at least one field of the data repository. See Application, 16:1-3, Figure 3A, 302. As claimed, the at least one condition includes at least one base search term. See Application, 16:3-6, Figure 3A, 304 and 306. The method also includes obtaining one or more parameters indicative of a state of an environment in which the query is to be executed. See Application, 16:24-31, 17:1-11. The one or more parameters comprise at least one parameter indicative of a date or time of day. See Application, 17:3-11. The method also includes identifying a set of expanded terms associated with the base search term based, at least in part, on the one or more parameters. See Application, 16:6-20, Figure 3A, 308 and 310, 17:3-11, 17:29-31, 18:1-9, Figure 3B. The method also includes generating a pointer to the identified set of expanded search terms. See Application, 21:9-22. This method also includes storing the query and information related to the pointer. See Application, 17:23-27, 20:26-30, and 21:9-22. This method also includes, prior to executing the query, retrieving the query and the information related to the pointer and modifying the query to contain one or more conditions based on one or more expanded search terms retrieved using the pointer. See Application, 17:23-27, Figure 3A, 312.

B. CLAIM 5 – INDEPENDENT

Claim 5 recites a method of searching fields of a data repository using state-sensitive term expansion. See Application, Abstract 1:16-18, 3:29-32 – 4:1-5, 16:24-31, 17:1-12, and Figure 3A. The method includes receiving, from a user, a query containing at least one condition for searching at least one field of the data repository. See Application, 16:1-3, Figure 3A, 302. As claimed, the at least one condition includes at least one base search term. See Application, 16:3-6, Figure 3A, 304 and 306. The method also includes obtaining one or more parameters indicative of a state of an environment in which the query is to be executed. See Application, 16:24-31, 17:1-11. The one or more parameters include at least one parameter indicative of a date or time of day. See Application, 17:3-11. This method also includes obtaining, based on the one or more parameters and the base search term, one or more expanded search terms. See Application, 16:6-20, Figure 3A, 308 and 310, 17:29-31, 18:1-9, Figure 3B. This method also includes modifying the query to contain one or more conditions based on the one or more expanded search terms. See, Application, 17:23-27, Figure 3A, 312.

Grounds of Rejection to be Reviewed on Appeal

1. Rejection of claims 5-7 and 9 under 35 U.S.C. § 103(a) as being unpatentable over *Goiffon et al.*, U.S. Pat. No. 6,453,312 (hereinafter *Goiffon '312*) in view of *Singh*, U.S. Pub. No. 2003/0204759.
2. Rejection of claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over *Goiffon et al.*, U.S. Pat. No. 6,226,792 (hereinafter *Goiffon '792*) in view of *Goiffon '312* and further in view of *Singh*.

ARGUMENTS

1. Rejection of claims 5-7 and 9 under 35 U.S.C. § 103(a) as being unpatentable over *Goiffon '312* in view of *Singh*

The Applicable Law

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP § 2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of *Graham v. John Deere Co.* 383 U.S. 1 (1966). The factual inquiries are as follows:

- (A) determining the scope and content of the prior art;
- (B) ascertaining the differences between the claimed invention and the prior art;
- (C) resolving the level of ordinary skill in the art; and
- (D) considering any objective indicia of nonobviousness.

Once the *Graham* factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art.

Applicants' Response to the Examiner's Argument

Respectfully, Applicants submit that the Examiner has not properly characterized the teachings of the references and/or the claims at issue. Accordingly, a prima facie case of obviousness has not been established.

For example, the Examiner continues to suggest that the references disclose "obtaining one or more parameters . . . indicative of a date or time of day," "obtaining, based on the one or more parameters and the base search term, one or more expanded search terms," and "modifying the query to contain one or more conditions based on the one or more expanded search terms," as recited in claim 5. Specifically, the Examiner asserts as follows:

Goiffon '312 teaches at col. 23 lines 30-40 different degrees of expansion are based on one or more parameters such as system performance requirement, available processing and memory resources. . . . Singh teaches at [0051] that system utilization "depend on the time of the day, the day of the week." Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Singh with Goiffon's teaching so that the system utilization can be determined correctly based on time of the day to efficiently use of[sic] the system resources without overloading the resources.

. . . .
In summary, Goiffon[] teaches the number of expanded search terms depends upon system utilization or available resources, and Singh suggest[s] time of the date or date of the week [affects] system utilization or available resource[s]. Thus, combining Goiffon and Singh would result in obtaining one or more search terms based on time of the date or date of the week as claimed.

Advisory Action, page 2; Final Office Action, pages 5 and 7. The cited portion of *Singh* is set forth below:

.... For example, during daytime the system loads may fluctuate more often because different working customers request different services. Consequently, the sampling period during this time is shorter than that at nighttime or weekends where system utilization is more stable. Similarly, the number of samples is higher during weekdays than during nighttime and weekends.

Singh, ¶ 51. While the cited portion of *Singh* teaches that the fluctuation of a system's utilization may depend on the time of day or the day of the week, there is absolutely no suggestion to modify a query in any manner based on date or time of day. In contrast, claim 5 recites modifying a query to include expanded search terms that are obtained based on parameters "indicative of a date or time of day." Further, claim 5 also recites "obtaining one or more parameters . . . indicative of a date or time of day." Accordingly, Applicants submit that the Examiner failed to properly ascertain the differences between the claimed invention and the prior art. Consequently, the references, even when combined, do not teach, show, or suggest "obtaining one or more parameters . . . indicative of a date or time of day," "obtaining, based on the one or more parameters and the base search term, one or more expanded search terms," or "modifying the query to contain one or more conditions based on the one or more expanded search terms." Accordingly, Applicants respectfully submit that the rejection is improper and should be withdrawn with respect to claim 5 and its dependents.

Further, the Examiner's rationale for combining *Goiffon* '312 with *Singh* is improper. Referring to the Examiner's language quoted above (namely, Advisory

Action, page 2; Final Office Action, pages 5 and 7), the Examiner suggests that it would have been obvious to one of ordinary skill in the art to combine *Singh* with *Goiffon* '312 "so that the system utilization can be determined correctly based on time of the day to efficiently use of[sic] the system resources without overloading the resources." Further, the portion of *Goiffon* '312 cited by the Examiner is set forth below:

[I]n the preferred embodiment, the entire Application Domain is expanded upon the initial user request. However, one skilled in the art will recognized that varying degrees of expansion could be provided in response to the initial user request to view a selected Concept Element within the concept tree, as may be dictated by system performance requirements, and available processing and memory resources.

Goiffon '312, col. 23 lines 30-40 (emphasis added). In other words, *Goiffon* '312 teaches providing varying degrees of expansion based on available processing and memory resources on a computer system. The Examiner, however, suggests that it would have been obvious to one of ordinary skill in the art to "determine" system utilization based on time of day. The Examiner's position, however, would require one of ordinary skill in the art to *disregard* available system performance data (such as available processing and memory resources) in favor of a less accurate alternative of "time of day" (that is, an alternative that would likely yield inaccurate results, relative to using the available system performance data). Thus, the Examiner's position is contradictory and untenable. Therefore, the Examiner's rationale for combining *Goiffon* '312 with *Singh* is improper. Accordingly, Applicants submit that the rejection is defective and should be withdrawn with respect to claim 5 and its dependents.

Therefore, the claims are believed to be allowable, and allowance of the claims is respectfully requested.

2. Rejection of claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over *Goiffon* '792 in view of *Goiffon* '312 and further in view of *Singh*.

The Applicable Law

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP § 2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of *Graham v. John Deere Co.* 383 U.S. 1 (1966). The factual inquiries are as follows:

- (A) determining the scope and content of the prior art;
- (B) ascertaining the differences between the claimed invention and the prior art;
- (C) resolving the level of ordinary skill in the art; and
- (D) considering any objective indicia of nonobviousness.

Once the *Graham* factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art.

Applicants' Response to the Examiner's Argument

Respectfully, Applicants submit that the Examiner has not properly characterized the teachings of the references and/or the claims at issue. Accordingly, a prima facie case of obviousness has not been established.

Claim 1 recites limitations similar to those found in claim 5, which has been discussed above. For the reasons given above with respect to claim 5, the references, even when combined, do not teach, show, or suggest "obtaining one or more parameters . . . indicative of a date or time of day," "obtaining, based on the one or more parameters and the base search term, one or more expanded search terms," or "modifying the query to contain one or more conditions based on the one or more expanded search terms." On this basis alone, Applicants respectfully submit that the rejection is improper and should be withdrawn with respect to claim 1 and its dependents.

Further, for the reasons given above with respect to claim 5, the Examiner's rationale for combining *Goiffon* '312 with *Singh* is improper. The Examiner also relies on combining *Goiffon* '312 with *Singh* in rejecting claim 1. On this basis alone,

Applicants respectfully submit that the rejection is improper and should be withdrawn with respect to claim 1 and its dependents.

Furthermore, the Examiner suggests that *Goiffon '792* teaches "generating a pointer to the identified set of expanded search terms." Specifically, the Examiner asserts as follows:

As per claim 1, *Goiffon '792* teaches . . . "generating a pointer to the identified set of expanded search terms" at Col. 19 lines 1-6

Final Office Action, page 4. Relevant portions of *Goiffon '792* are set forth below:

[B]inary relationships are created between two elements. One manner of representing relationships between elements is by including pointers to the various related elements within the meta-data stored within an element. That is, the element stores a relationship indicator such as a pointer that may be used to address a respectively related element. Those skilled in the art will recognize that many ways of representing the element relationships exist, such as by storing name indicators identifying the various related elements.

....

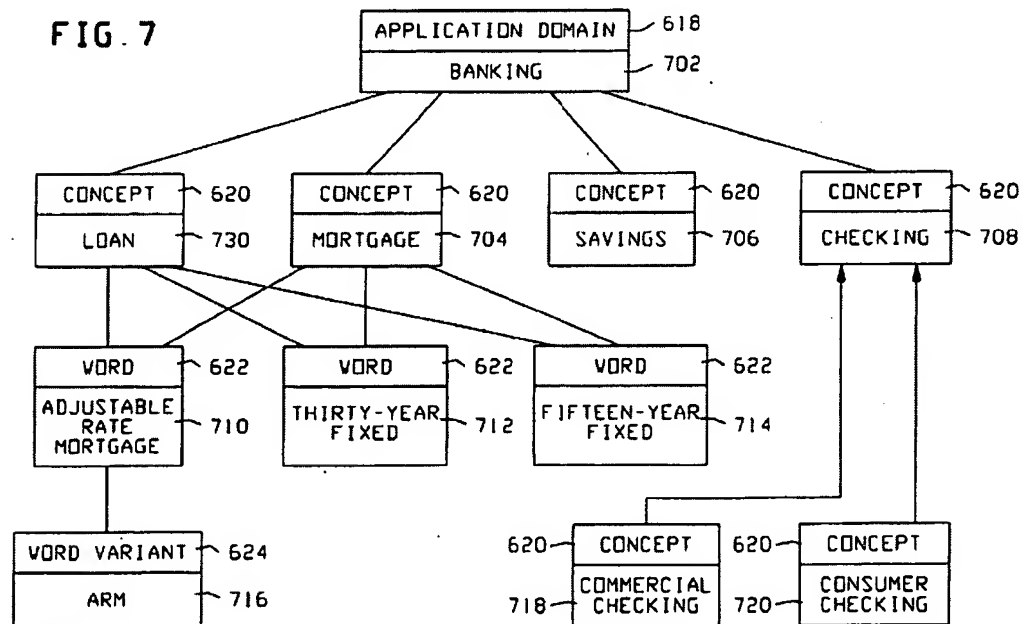


FIG. 7 is a block diagram illustrating the interrelationships between element instances created using the element subtypes of element type "Locator". This diagram is similar to that shown in FIG. 5. Within each block, element types are listed across the top, with the instance of the element appearing below. An element of type "Application Domain" 618 is created to store the broad concept identifier "Banking", shown as element

702. Elements of element type "Concept" 620 may be created for the element "Banking" which include elements "Loan" 730, "Mortgage" 704, "Saving" 706, and "Checking" 708. These elements are associated with concepts that identify areas within the broad category "Banking". Further assume elements of type "Word" 622 are created having a relationship with element "Mortgage" 704 to describe various types of Mortgages. These elements could include such elements as "Adjustable Rate Mortgage" 710, "Thirty-Year Fixed" 712, or "Fifteen-Year Fixed" 714. In a similar manner, elements of sub-type Word 622 could be created for each of the elements of sub-type Concept. Further assume an element of sub-type "Word Variant" 624 is created having a relationship to element "Adjustable Rate Mortgage" 710 that stores the acronym "ARM", shown as element 716. Other similar elements of sub-type Word Variant could be created to store acronyms, synonyms, abbreviations, or foreign language representations having relationships to other elements of type "Word" 622. In addition, each of the Word and Word Variant elements can be associated with multiple Concept Elements. This is shown by Concept Element "Loan" 730, which is associated with Word Elements "Adjustable Rate Mortgage" 710, "Thirty-Year Fixed" 712, and "Fifteen-Year Fixed" 714. The resulting relationships form a hierarchical tree structure that branches from the element "Banking" 702 and describes various application-type concepts that are each somehow related to the broad term "Banking" and which may be used to describe various ones of the Asset Elements.

Goiffon '792, col. 19 lines 1-6, Figure 7, and col. 24 lines 15-51. That is, the Examiner apparently analogizes "an element storing a relationship indicator to a related element" of Goiffon '792 to "generating a pointer to the identified set of expanded search terms." Even assuming, *arguendo*, that the "element" of Goiffon '792 is analogous to "search term," Goiffon '792 merely teaches *a search term storing a pointer to a related search term*. Goiffon '792 fails to teach or suggest generating a pointer to the identified set of set of expanded search terms." In other words, by suggesting that merely "an element storing a relationship indicator to a related element" is taught, the Examiner is wholly ignoring substantive limitations of claim 1 (namely, the underlined limitations), thereby fundamentally misconstruing claim 1. Therefore, Goiffon '792 fails to teach "generating a pointer to the identified set of expanded search terms." Accordingly, Applicants respectfully submit that the rejection is defective and should be withdrawn with respect to claim 1 and its dependents.

Further still, the Examiner suggests that *Goiffon* '312 teaches "storing the query and information related to the pointer" [to the identified set of expanded search terms]. Specifically, the Examiner asserts as follows:

Goiffon '312 teach[es] . . . the step of ["]storing the query and information related to the pointer" at Col. 18 lines 15-25 and Col. 21 lines 18-25.

Final Office Action, page 5. The sections of *Goiffon* '312 cited by the Examiner are set forth below:

According to yet another embodiment of the invention, the user may invoke SSW 121 in a batch mode with the input parameters shown in FIG. 4. Using batch mode, a complete set of search terms is located such as that shown in FIG. 8. In this mode, the finished query may be written to a file, or may be programmatically returned to the calling search tool. The query may thereafter be processed by a script running on Script Server 142 to programmatically insert logical operators into the query. For example, script commands can be utilized to programmatically insert a logical operator "OR" between each of the search terms included in the query.

....

SSW will retrieve Locator Elements from Element Repository 101 via service calls to AIM EXE 105, as shown by Arrow 1014. The requested elements are returned to SSW, as illustrated by Arrow 1016, so the search query can be formatted according to user specifications, including the use of any logical operators. Thereafter, the search string may be programmatically returned to the Search-Specific Environment in Block 1002

Goiffon '312, col. 18 lines 15-25 and col. 21 lines 18-25. Respectfully, the cited sections fail to teach or suggest anything about storing information related to a pointer, let alone a pointer to an identified set of expanded search terms, as required by claim 1. Thus, the Examiner is mischaracterizing *Goiffon* '312. Therefore, *Goiffon* '312 fails to teach "storing the query and information related to the pointer" [to the identified set of expanded search terms]. Accordingly, Applicants respectfully submit that the rejection is defective and should be withdrawn with respect to claim 1 and its dependents.

Therefore, the claims are believed to be allowable, and allowance of the claims is respectfully requested.

CONCLUSION

The Examiner errs in finding that:

1. Claims 5-7 and 9 are unpatentable over *Goiffon '312* in view of *Singh*; and
2. Claims 1-3 are unpatentable over *Goiffon '792* in view of *Goiffon '312* and further in view of *Singh*.

Withdrawal of the rejections and allowance of all claims is respectfully requested.

Respectfully submitted, and
S-signed pursuant to 37 CFR 1.4,

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CLAIMS APPENDIX

1. (Previously Presented) A method of searching fields of a data repository using dynamic term expansion, comprising:
 - obtaining a query containing at least one condition for searching at least one field of the data repository, wherein the at least one condition includes at least one base search term;
 - obtaining one or more parameters indicative of a state of an environment in which the query is to be executed, wherein the one or more parameters comprise at least one parameter indicative of a date or time of day;
 - identifying a set of expanded terms associated with the base search term based, at least in part, on the one or more parameters;
 - generating a pointer to the identified set of expanded search terms; and
 - storing the query and information related to the pointer; and
 - prior to executing the query, retrieving the query and the information related to the pointer and modifying the query to contain one or more conditions based on one or more expanded search terms retrieved using the pointer.
2. (Original) The method of claim 1, further comprising modifying the identified set of expanded search terms after generating the pointer.
3. (Original) The method of claim 1, further comprising recreating the pointer based on the information related to the pointer.
4. (Cancelled)
5. (Previously Presented) A method of searching fields of a data repository using state-sensitive term expansion, comprising:
 - receiving, from a user, a query containing at least one condition for searching at least one field of the data repository, wherein the at least one condition includes at least one base search term;

obtaining one or more parameters indicative of a state of an environment in which the query is to be executed, wherein the one or more parameters comprise at least one parameter indicative of a date or time of day;

obtaining, based on the one or more parameters and the base search term, one or more expanded search terms; and

modifying the query to contain one or more conditions based on the one or more expanded search terms.

6. (Original) The method of claim 5, wherein obtaining one or more expanded search terms comprises selecting a set of expanded terms from a plurality of sets of expanded terms, each set corresponding to a different level of expansion.

7. (Original) The method of claim 6, wherein selecting a set of expanded terms from the plurality of sets of expanded terms comprises:

generating a level of expansion based on the one or more parameters; and

selecting a set of expanded search terms corresponding to the generated level of expansion.

8. (Cancelled)

9. (Previously Presented) The method of claim 5, wherein the at least one parameter indicative of a date or time of day is indicative of when the query is to be executed.

10-25. (Cancelled)

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.